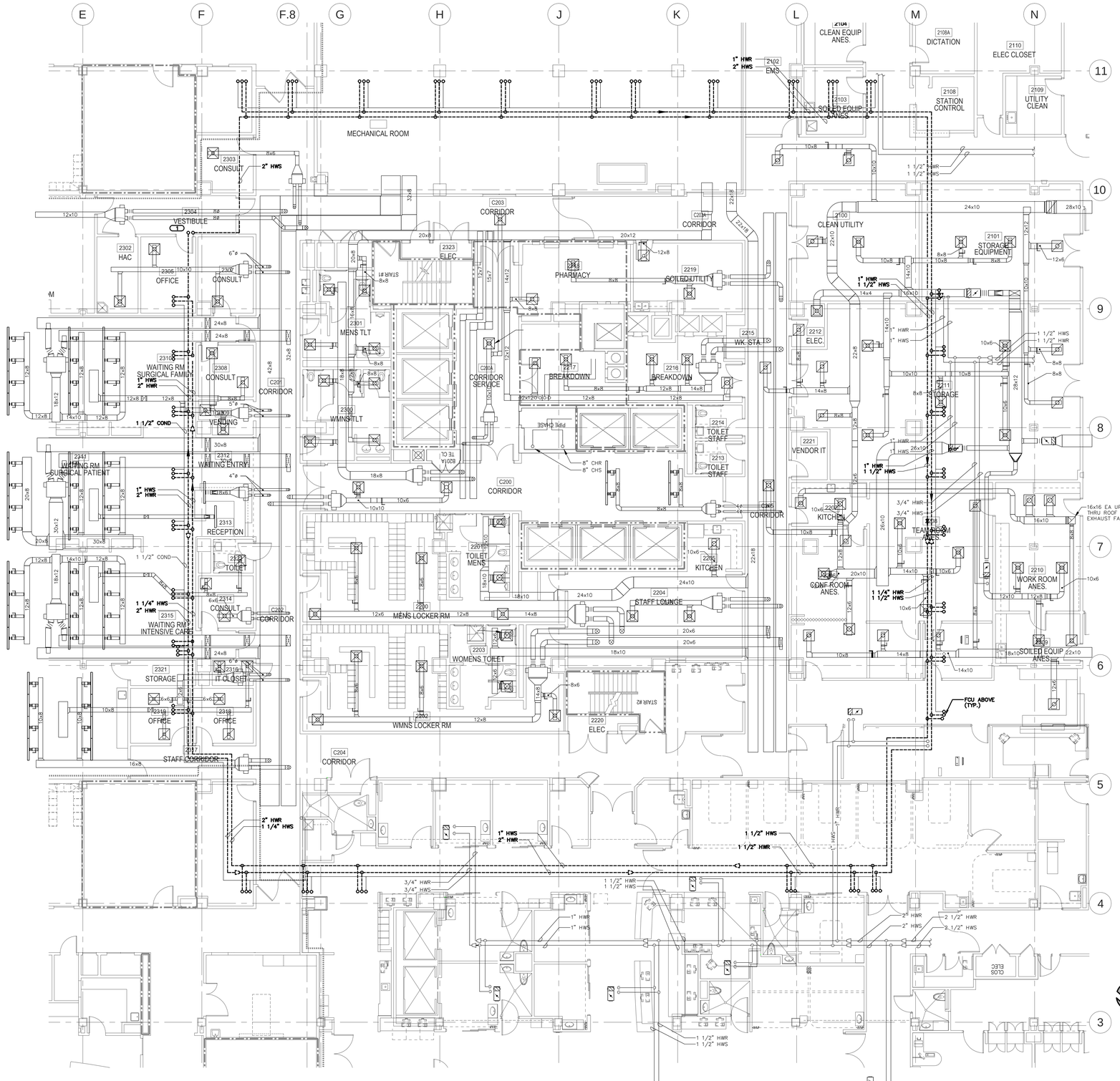

MECHANICAL SYMBOLS LIST

SYMBOL:	DESCRIPTION:
	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
	NEW
	EXISTING DUCT TO REMAIN
T	THERMOSTAT/SENSOR
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN LINE
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	DIRECTION OF FLOW IN PIPE
	NEW CONNECTION
	SHUTOFF VALVE NORMALLY OPEN
AFF	ABOVE FINISHED FLOOR
G.C.	GENERAL CONTRACTOR
H.C.	HEATING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
NC	NEW CONNECTION
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN

GENERAL SHEET NOTES

1. TRADES PERFORMING WORK ABOVE EXISTING CEILINGS SHALL REMOVE AND REINSTALL OR CUT AND PATCH EXISTING CEILING UNLESS THE ARCHITECTURAL CEILING PLANS INDICATE NEW CEILINGS IN THE AFFECTED AREAS. TRADES INSTALLING NEW WORK ON EXISTING PAINTED STRUCTURE SHALL PAINT NEW WORK TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL CEILING PLANS FOR MORE INFORMATION ON EXISTING/NEW CEILINGS AND EXPOSED PAINTED STRUCTURE.
2. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF DEMOLITION WORK REQUIRED AND DO NOT INDICATE EVERY PIPE, PIECE OF EQUIPMENT OR INCIDENTALS THAT MUST BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY EXISTING CONDITIONS.
3. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SYSTEMS IN SERVICE DURING CONSTRUCTION AS REQUIRED. WHEN WORK MUST BE PERFORMED ON OPERATING EQUIPMENT USE PERSONAL EXPERIENCED IN SUCH OPERATIONS.
4. REPAIR ADJACENT CONSTRUCTION AND FINISH DAMAGED DURING DEMOLITION AND EXTENSION WORK PATCH TO MATCH EXISTING CONSTRUCTION AS REQUIRED.
5. REMOVE ALL HANGERS AND ACCESSORIES FOR PIPING TO BE REMOVED.
6. ALL WORK IN THIRD FLOOR CORRIDORS SHALL BE DONE AFTER 5PM. EXCEPT FOR LABELING OF PIPES.
7. FOR ALL WORK DONE IN CORRIDORS, ALL ADJACENT EXAM ROOMS, NOT UNDER CONSTRUCTION DURING THE CURRENT SHIFT, ARE TO BE SEALED OFF COMPLETELY PER THE HOSPITALS INFECTION CONTROL STANDARDS AND GUIDELINES.
8. A MAXIMUM OF THREE EXAM ROOMS MAY BE TAKEN OUT OF SERVICE AT A TIME. CONTRACTOR SHALL COORDINATE WITH COTR TO ARRANGE FOR TERMINAL CLEANING IN ANY ROOM WHERE CONSTRUCTION ACTIVITY OCCURRED.
9. FOR DEDUCTIVELY ALTERNATIVE #2 DISCONNECT AND CAP EXISTING PIPING AND ABANDON IN PLACE, IN LIEU OF REMOVAL.

KEYNOTES

1. PROVIDE FULL SIZE TEE AND SHUTOFF VALVE AT BOTTOM OF EXISTING SUPPLY AND RETURN RISER FOR POTENTIAL FUTURE CONNECTIONS. PROVIDE 3/4" MALE HOSE DRAIN CONNECTION FOR MAINTENANCE THAT REQUIRES DRAINING THE RISER.

1 SECOND FLOOR DEMOLITION PLAN - MECHANICAL & ELECTRICAL

SCALE: 1/8"=1'-0"

Revisions:	Date

CONSULTANTS:

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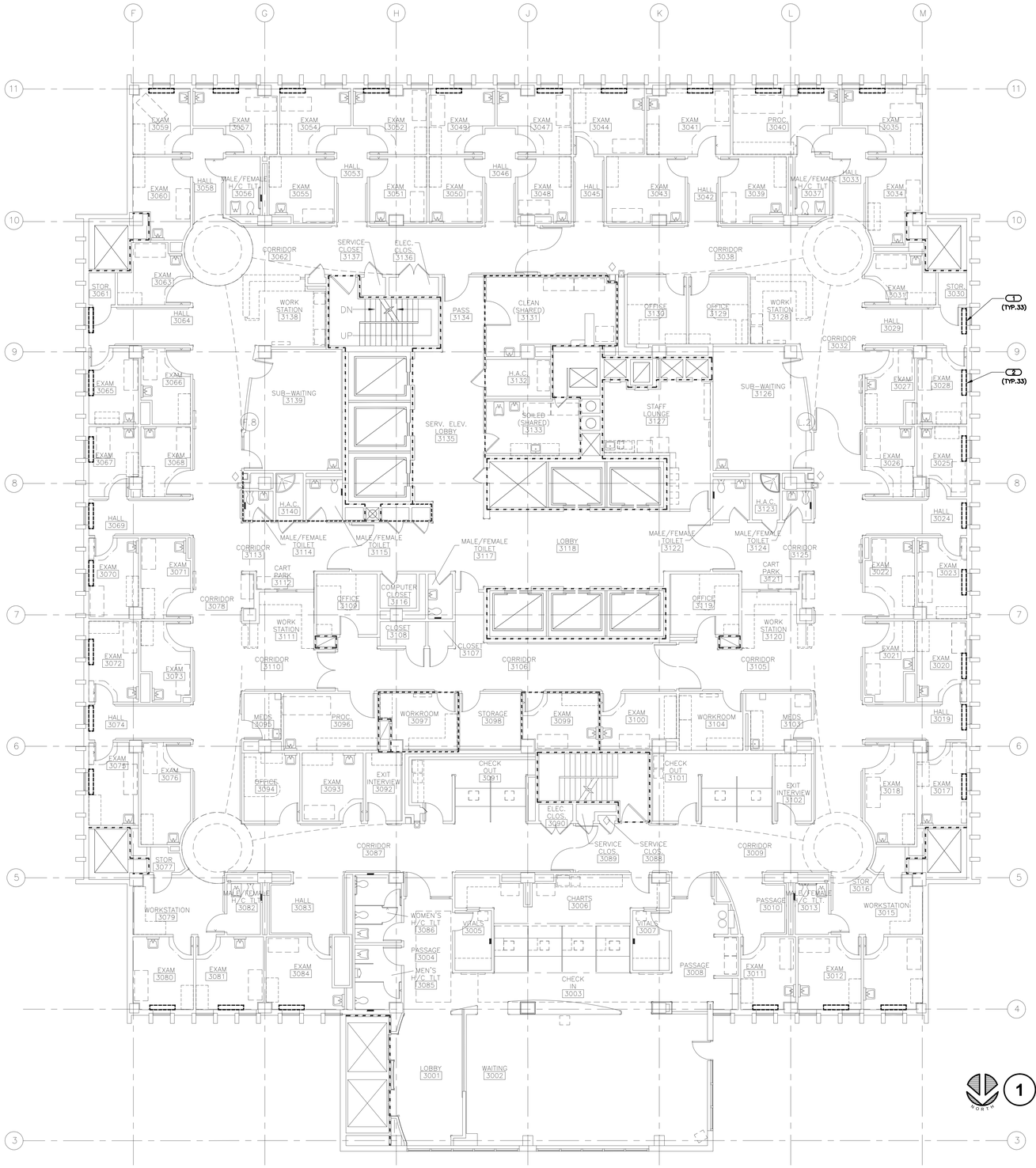
REFERENCE SCALE IN INCHES 0 1 2 3

Drawing Title	SECOND FLOOR DEMOLITION PLAN - MECHANICAL + ELECTRICAL
Approved Project Director	
Project Title	REPLACING FAN COILS 3RD FLOOR
Location	V.A. HOSPITAL, HINES, IL
Date	06-21-13
Checked	AJW
Drawn	MAK
Project Number	578-12-128
Building Number	200
Drawing Number	MED102
Dwg.	5 of 8

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



KEYNOTES

1. REMOVE EXISTING FAN COIL UNIT. REMOVE HWS/R PIPES THROUGH FLOOR. CUT CONDENSATE LINE AND PREPARE FOR NEW CONNECTION.
2. EXISTING FAN COIL UNIT TO BE REPLACED. EXISTING CONDUIT AND CONDUCTORS TO REMAIN TO SERVE NEW UNIT.

GENERAL SHEET NOTES

1. TRADES PERFORMING WORK ABOVE EXISTING CEILINGS SHALL REMOVE AND REINSTALL OR CUT AND PATCH EXISTING CEILING UNLESS THE ARCHITECTURAL CEILING PLANS INDICATE NEW CEILINGS IN THE AFFECTED AREAS. TRADES INSTALLING NEW WORK ON EXISTING PAINTED STRUCTURE SHALL PAINT NEW WORK TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL CEILING PLANS FOR MORE INFORMATION ON EXISTING/NEW CEILINGS AND EXPOSED PAINTED STRUCTURE.
2. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF DEMOLITION WORK REQUIRED AND DO NOT INDICATE EVERY PIPE, PIECE OF EQUIPMENT OR INCIDENTALS THAT MUST BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY EXISTING CONDITIONS.
3. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SYSTEMS IN SERVICE DURING CONSTRUCTION AS REQUIRED. WHEN WORK MUST BE PERFORMED ON OPERATING EQUIPMENT USE PERSONAL EXPERIENCED IN SUCH OPERATIONS.
4. REPAIR ADJACENT CONSTRUCTION AND FINISH DAMAGED DURING DEMOLITION AND EXTENSION WORK. PATCH TO MATCH EXISTING CONSTRUCTION AS REQUIRED.
5. REMOVE ALL EXISTING THERMOSTATS AND ASSOCIATED CONTROLS FOR FAN COIL UNITS TO BE REMOVED. DO NOT ABANDON ANY CONTROLS WIRING, CONDUIT OR PNEUMATIC CONTROLS IN THE CEILING.
6. CUT AND PATCH FLOORING AS REQUIRED TO MATCH EXISTING.
7. ALL WORK IN THIRD FLOOR CORRIDORS SHALL BE DONE AFTER 5PM. EXCEPT FOR LABELING OF PIPES.
8. FOR ALL WORK DONE IN CORRIDORS, ALL ADJACENT EXAM ROOMS, NOT UNDER CONSTRUCTION DURING THE CURRENT SHIFT, ARE TO BE SEALED OFF COMPLETELY PER THE HOSPITALS INFECTION CONTROL STANDARDS AND GUIDELINES.
9. A MAXIMUM OF THREE EXAM ROOMS MAY BE TAKEN OUT OF SERVICE AT A TIME. CONTRACTOR SHALL COORDINATE WITH COTR TO ARRANGE FOR TERMINAL CLEANING IN ANY ROOM WHERE CONSTRUCTION ACTIVITY OCCURRED.

1 THIRD FLOOR DEMOLITION PLAN - MECHANICAL & ELECTRICAL

SCALE: 1/8"=1'-0"

Revisions:	Date

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REFERENCE SCALE IN INCHES
0 1 2 3

Drawing Title: THIRD FLOOR DEMOLITION PLAN - MECHANICAL + ELECTRICAL

Approved: Project Director

Project Title: REPLACING FAN COILS 3RD FLOOR

Location: V.A. HOSPITAL, HINES, IL

Date: 06-21-13 | Checked: AJW | Drawn: MAK

Project Number: 578-12-128

Building Number: 200

Drawing Number: MED103

Dwg. 6 of 8

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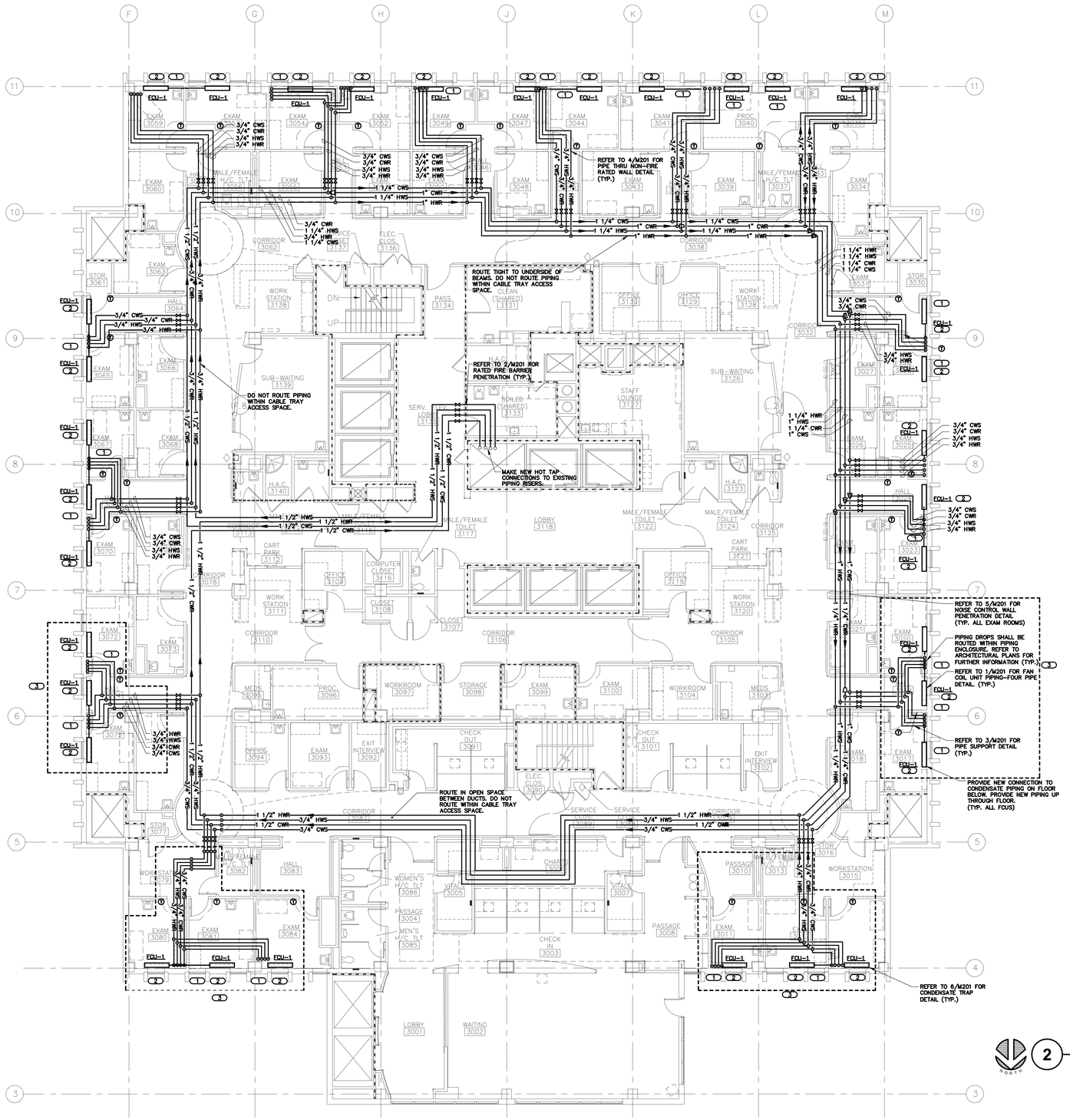

2 THIRD FLOOR PLAN - MECHANICAL & ELECTRICAL

SCALE: 1/16"=1'-0"

GENERAL SHEET NOTES

1. TRADES PERFORMING WORK ABOVE EXISTING CEILINGS SHALL REMOVE AND REINSTALL OR CUT AND PATCH EXISTING CEILING UNLESS THE ARCHITECTURAL CEILING PLANS INDICATE NEW CEILINGS IN THE AFFECTED AREAS. TRADES INSTALLING NEW WORK ON EXISTING PAINTED STRUCTURE SHALL PAINT NEW WORK TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL CEILING PLANS FOR MORE INFORMATION ON EXISTING/NEW CEILINGS AND EXPOSED PAINTED STRUCTURE.
2. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SYSTEMS IN SERVICE DURING CONSTRUCTION AS REQUIRED. WHEN WORK MUST BE PERFORMED ON OPERATING EQUIPMENT USE PERSONAL EXPERIENCED IN SUCH OPERATIONS.
3. REPAIR ADJACENT CONSTRUCTION AND FINISH DAMAGED DURING DEMOLITION AND EXTENSION WORK. PATCH TO MATCH EXISTING CONSTRUCTION AS REQUIRED.
4. TCC TO TIE FAN COIL UNITS INTO EXISTING BUILDING AUTOMATION SYSTEM THROUGH CLOSEST MEANS, OFTEN A VAV BOX CONTROLLER. THE VAV BOX CONTROLLER SHALL NOT FUNCTION AS A MEANS OF CONTROLLING THE FAN COIL UNIT BUT RATHER AS A POINT OF NETWORK ACCESS.
5. ALL NEW FAN COIL UNITS SHALL CONNECT TO EXISTING CONDENSATE PIPING FOR EXISTING UNITS ROUTED ON THE SECOND FLOOR. MC TO PROVIDE MEANS FOR MAKING ALL FINAL CONNECTION.
6. CUT AND PATCH FLOORING AS REQUIRED TO MATCH EXISTING.
7. ALL PIPING TO FAN COIL UNITS SHALL BE 3/4" UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF EXISTING FAN COIL UNITS AND INSTALL NEW EQUIPMENT IN THE SAME LOCATION.
9. ALL WORK IN THIRD FLOOR CORRIDORS SHALL BE DONE AFTER 5PM. EXCEPT FOR LABELING OF PIPES.
10. FOR ALL WORK DONE IN CORRIDORS, ALL ADJACENT EXAM ROOMS, NOT UNDER CONSTRUCTION DURING THE CURRENT SHIFT, ARE TO BE SEALED OFF COMPLETELY PER THE HOSPITALS INFECTION CONTROL STANDARDS AND GUIDELINES.
11. A MAXIMUM OF THREE EXAM ROOMS MAY BE TAKEN OUT OF SERVICE AT A TIME. CONTRACTOR SHALL COORDINATE WITH COTR TO ARRANGE FOR TERMINAL CLEANING IN ANY ROOM WHERE CONSTRUCTION ACTIVITY OCCURRED.
12. EXISTING FLOOR CORES SHALL BE REUSED AS MUCH AS POSSIBLE. CORE NEW HOLES AS REQUIRED AND PATCH ALL UNUSED FLOOR CORES. ALL PIPE CORES SHALL HAVE A SLEEVE INSTALLED THAT EXTENDS AT LEAST 1 1/2" ABOVE THE FLOOR AND SEALED WATERTIGHT TO PREVENT ANY WATER FROM LEAKING TO THE FLOOR BELOW.
13. FOR DEDUCTIVE #1, PROVIDE STANDALONE CONTROLS FOR FANCILY UNITS.

KEYNOTES

1. ROUTE PIPING HORIZONTALLY WITHIN PIPING ENCLOSURE. REFER TO ARCHITECTURAL PLANS FOR FURTHER INFORMATION.
2. CONNECT NEW FAN COIL UNIT TO THE CIRCUIT THAT SERVED THE ONE IT IS REPLACING. EXTEND THE EXISTING CONDUIT AND CONDUCTOR AS REQUIRED. NEW CONDUIT AND CONDUCTOR TO MATCH EXISTING.
3. FOR ALTERNATIVE NUMBER 3, EXCLUDE ALL WORK, EXCEPT FOR PIPING STUBS, IN THIS ROOM.

Revisions:	Date

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REFERENCE SCALE IN INCHES
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Drawing Title	THIRD FLOOR PLAN - MECHANICAL + ELECTRICAL
Approved: Project Director	
Project Title	REPLACING FAN COILS 3RD FLOOR
Location	V.A. HOSPITAL, HINES, IL
Date	06-21-13
Checked	AJW
Drawn	MAK
Project Number	578-12-128
Building Number	200
Drawing Number	ME103
Dwg.	6 of 8

Office of Construction and Facilities Management
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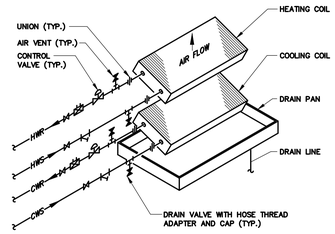
VA FORM 08-6231

FAN COIL UNIT SCHEDULE - HYDRONIC

SYMBOL	SERVICE	CFM	EXT. S.P. IN W.C.	EAT		COOLING COIL							HEATING COIL						DIMENSIONS			ELECTRICAL								MANUFACTURER	MODEL	REMARKS
				DB °F	WB °F	TOTAL MBH	SENSIBLE MBH	GPM	EWT °F	LWT °F	COIL ROWS	W.P.D. FT. HD	TOTAL MBH	GPM	EWT °F	LWT °F	COIL ROWS	W.P.D. FT. HD	L	D	H	HP	MOTOR POWER	MCA	RPM	VOLT-PHASE	DISCONNECT		CONTROLLER/STARTER				
																												BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE A)			
FCU-1	SEE DWGS.	290	NOTE 1	75	62	5.2	4.5	0.50	56	44	2	2.5	3.50	0.5	140	110	1	2.5	48"	9.5"	28.5"	1/4	22W	1.38	625	120-1	MFR	NF	MFR	NF	TRANE	UNITRANE -060	NOTE 2, 3

NOTES:
1. UNIT WILL BE FREE DISCHARGE, VERTICAL SLOPE TOP, FRONT TOE SPACE INLET, TOP QUAD GRILLE OUTLET.
2. EXISTING FAN COIL UNIT DIMMENSIONS ARE APPROXIMATELY 50 3/4" (WIDTH) BY 9 1/4" (DEPTH) BY 28 1/2" (HEIGHT) (UNIT HAS A SLOPED TOP, HEIGHT DIMENSION IS BACK OF UNIT). CONTRACTOR TO FIELD VERIFY ALL DIMENSION AND PROVIDE NEW UNITS THAT WILL FIT WITHIN EXISTING EQUIPMENT FOOTPRINT AS CLOSE TO THE EXISTING SIZE AS POSSIBLE. 48" IS THE MINIMUM ACCEPTABLE WIDTH OF THE UNIT.
3. PROVIDE UNIT WITH ELECTRICALLY COMMUTATED MOTOR (ECM) FAN.
4 PROVIDE MERV 8 FILTERS FOR THE FAN



1 FAN COIL UNIT PIPING - FOUR PIPE
NO SCALE

FLOW DIAGRAM SYMBOL LIST

SYMBOL:	DESCRIPTION:		
HWS	HEATING WATER SUPPLY		UNION/FLANGE
HWR	HEATING WATER RETURN		"WYE" – STRAINER
CWS	CHILLED WATER SUPPLY		DRAIN VALVE WITH HOSE CONNECTION AND CAP
CWR	CHILLED WATER RETURN		PRESSURE/TEMPERATURE TEST PLUG
	DIRECTION OF FLOW IN PIPE		CONTROL VALVE (TWO-WAY)
	BALANCING VALVE		NORMALLY CLOSED VALVE
	SHUTOFF VALVE		

GENERAL CONTROL NOTES

1. EACH D.I., D.O., A.I. AND A.O. POINT SHOWN FOR ALL CONTROL DIAGRAMS SHALL BE DISCRETE FROM ALL OTHER POINTS EXCEPT AS SPECIFICALLY NOTED.
2. ALL WIRING, CONTROL COMPONENTS, DEVICES AND PROGRAMMING SHOWN ON THESE CONTROL DRAWINGS SHALL BE PROVIDED BY THE TCC UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL ACTUATORS SHALL BE OF THE ELECTRICAL TYPE FOR THIS PROJECT UNLESS AN ACTUATOR IS SPECIFICALLY INDICATED ON THE DRAWINGS OR SPECIFICATIONS TO BE PNEUMATIC..
4. ALL VALVE ACTUATORS SHOWN WITH POSITION FEEDBACK SHALL HAVE THE VALVE POSITION DISPLAYED ON GRAPHICAL SCREEN ADJACENT TO THE DAMPER/VALVE COMMAND SIGNAL. DISPLAYED VALVE POSITION SHALL BE FROM THE FEEDBACK DEVICE/CIRCUIT (OUTPUT SIGNAL FROM THE FMCS TO THE ACTUATOR IS NOT ACCEPTABLE)
5. MODULATING SIGNALS SHALL BE DISPAYED AS % OPEN (SIGNALS DISPLAYED AS % CLOSED ARE NOT ACCEPTABLE).
6. ALL CONTROL COMPONENTS SUCH AS RELAYS, SWITCHES, DDC CONTROLLERS, ETC. SHALL BE MOUNTED IN STEEL ENCLOSURES WITH STEEL MOUNTING BACKPLATES PER SPECIFICATION 23 09 23.
7. EACH CONTROL PANEL SHALL HAVE A LAMINATED COPY OF THE APPLICABLE SEQUENCE OF OPERATION AND CONTROL DIAGRAM INDICATING THE POINTS, COMPONENTS AND OPERATION OF EQUIPMENT ASSOCIATED WITH EACH PANEL. REFER TO SECTION 23 09 23 FOR ADDITIONAL REQUIREMENTS.
8. CONTROL DIAGRAMS ARE SCHEMATIC IN NATURE AND DO NOT SHOW ALL REQUIRED CONTROL DEVICES AND COMPONENTS. REFER TO FLOOR PLANS, FLOW DIAGRAMS AND DETAILS FOR ADDITIONAL CONTROL DEVICES, COMPONENTS AND REQUIREMENTS NOT SHOWN ON THESE CONTROL DRAWINGS.
9. TCC SHALL PROVIDE ALL CONTROL COMPONENTS AND ACCESSORIES AS REQUIRED FOR EQUIPMENT TO BE CONTROLLED AS DESCRIBED IN THE SEQUENCE OF OPERATION REGARDLESS OF WHETHER ALL CONTROL COMPONENTS OR POINTS ARE SHOWN IN THE ASSOCIATED CONTROL DIAGRAM.

SCHEDULE GENERAL NOTES:

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
- MFR = MANUFACTURER
- EC = ELECTRICAL CONTRACTOR.
- MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR
- MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR
- ATC = AUTOMATIC TEMPERATURE CONTROL CONTRACTOR

B. DISCONNECT TYPE:
- F = FUSED
- NF = NON-FUSED

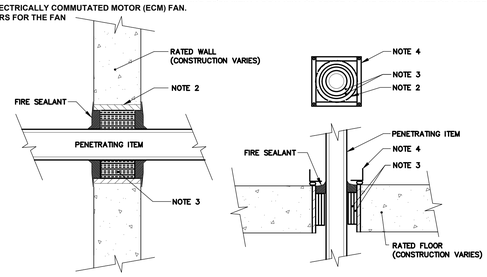
C. CONTROLLER STARTER TYPE:
- FV = FULL VOLTAGE
- WYE = WYE-DELTA
- SS = SOLID STATE (SOFT START)
- MS = MANUAL STARTER
- VFD = VARIABLE FREQUENCY DRIVE
- VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

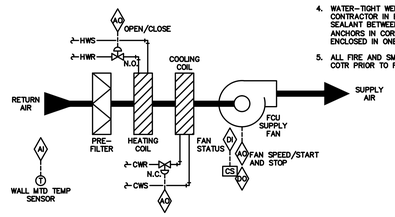
F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
- MFR = STANDARD CURB BY MANUFACTURER
- GC = BY GENERAL CONTRACTOR
- SAC = SOUND ATTENUATOR CURB



2 RATED FIRE BARRIER PENETRATION
NO SCALE

NOTES:
1. THIS GENERAL DETAIL APPLIES TO ALL ITEMS PENETRATING FIRE RATED WALLS OR FLOORS. THE INTENT IS TO MAINTAIN THE FIRE RATING AND TO ALLOW LONGITUDINAL MOVEMENT. REFER TO SPECIFICATION SECTION 23 05 11 AND 23 21 13 FOR SELECTION OF THROUGH PENETRATION FIRE STOPPING.
2. SCHEDULE 5 PIPE SLEEVE EMBEDDED IN WALL OR FLOOR, OR SMOOTH CORE DRILL. EACH CONTRACTOR FURNISHES SLEEVE TO G.C., COORDINATES SLEEVE LOCATIONS AND DEBURS SLEEVE. G.C. BUILDS SLEEVE INTO WALL OR FLOOR ALLOWING NO GAP AROUND SLEEVE. IF SLEEVE IS NOT PROVIDED WHEN WALL OR FLOOR IS BUILT, CONTRACTOR SHALL INSTALL SLEEVE. SLEEVE SIZE SHALL ALLOW ANNULAR SPACE REQUIRED BY THE SELECTED FIRE STOP SYSTEM.
3. INSTALL BACKING MATERIAL, SUCH AS MINERAL WOOL SAFING, AS REQUIRED FOR FIRE STOP SYSTEM. INSTALL IN ACCORDANCE WITH FIRE STOP SYSTEM APPLICATION LISTING. SECURE TO WALL OR FLOOR TO ALLOW LONGITUDINAL MOVEMENT OF PENETRATING ITEM WITHOUT MOVEMENT OF FIRE BARRIER.
4. WATER-TIGHT WELDED 1"x1" 20 GAUGE MINIMUM GALVANIZED SHEET METAL ANGLE FRAME, BY CONTRACTOR IN EQUIPMENT ROOMS FOR WATER STOP. PLACE A BEAD OF WATERPROOF SEALANT BETWEEN FLOOR AND BOTTOM OF ANGLE FRAME. SECURE TO FLOOR WITH MASONRY ANCHORS IN CORNERS AND ON 12" MAXIMUM CENTERS. MULTIPLE PENETRATING ITEMS MAY BE ENCLOSED IN ONE FRAME.
5. ALL FIRE AND SMOKE SEALS AND FIRE-RATED PENETRATIONS SHALL BE INSPECTED BY THE COTR PRIOR TO FINAL ACCEPTANCE.



SEQUENCE OF OPERATION:

SUPPLY FAN OPERATION SHALL BE CONTROLLED BY THE FMCS THROUGH A CONTACTOR. THE UNIT SHALL MAINTAIN A ROOM AIR TEMPERATURE SETPOINT.

WHEN OUTDOOR AIR TEMPERATURE IS BELOW 55°F (ADJ.) ROOM SETPOINT SHALL BE 72°F (ADJ.) AND WHEN OUTDOOR AIR TEMPERATURE IS ABOVE 55°F (ADJ.) ROOM SETPOINT SHALL BE 72°F (ADJ.).

BASELINE: ECM MOTORS WITH SPRING RETURN CONTROL VALVES

WHENEVER THE ROOM AIR TEMPERATURE IS 2°F (ADJ.) ABOVE THE SETPOINT, THE FOLLOWING SHALL OCCUR:
- THE HEATING COIL CONTROL VALVE SHALL BE CLOSED.
- THE CHILLED WATER CONTROL VALVE SHALL MODULATE OPEN AND THE FAN SHALL MODULATE AIRFLOW TO MAINTAIN SPACE TEMPERATURE SETPOINT.

WHENEVER THE ROOM AIR TEMPERATURE IS 2°F (ADJ.) BELOW THE SETPOINT, THE FOLLOWING SHALL OCCUR:
- THE CHILLED COIL CONTROL VALVE SHALL BE CLOSED.
- THE HEATING WATER CONTROL VALVE SHALL MODULATE OPEN AND THE FAN SHALL MODULATE AIRFLOW TO MAINTAIN SPACE TEMPERATURE SETPOINT.

IF ROOM AIR TEMPERATURE IS MAINTAINED AND BOTH THE HEATING AND COOLING COIL ARE VALVES CLOSED, THE SUPPLY FAN SHALL BE DE-ENERGIZED. IF EITHER OF THE COIL CONTROL VALVES OPEN, THE SUPPLY FAN SHALL BE ENERGIZED.

FMCS SHALL INDICATE AN ALARM TO THE FMCS OPERATOR WORKSTATION IF THE FMCS COMMANDS ANY SUPPLY FAN TO OPERATE AND THE FAN CURRENT RELAY DETECTS INSUFFICIENT CURRENT FLOW.

WHENEVER FCU IS SHUTDOWN THE FOLLOWING SHALL OCCUR:
- HEATING AND CHILLED WATER CONTROL VALVE SHALL CLOSE.
- SUPPLY FAN SHALL BE DE-ENERGIZED.

ALTERNATE #3: PSC MOTORS WITH MODULATING CONTROL VALVES

PROVIDE ALL CONTROL VALVES WITH ANALOG VALVE FEEDBACK.

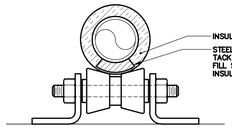
WHENEVER THE ROOM AIR TEMPERATURE IS 2°F (ADJ.) ABOVE THE SETPOINT, THE FOLLOWING SHALL OCCUR:
- THE HEATING COIL CONTROL VALVE SHALL BE CLOSED.
- THE CHILLED WATER CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT.

WHENEVER THE ROOM AIR TEMPERATURE IS 2°F (ADJ.) BELOW THE SETPOINT, THE FOLLOWING SHALL OCCUR:
- THE CHILLED COIL CONTROL VALVE SHALL BE CLOSED.
- THE HEATING WATER CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT.

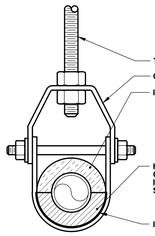
4 FAN COIL UNIT CONTROL DIAGRAM
NO SCALE

CONTROL SYMBOLS LIST

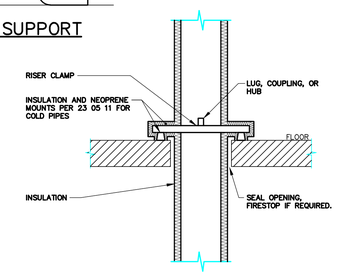
SYMBOL:	DESCRIPTION:		
	FAN	DI	DIGITAL INPUT
T	TEMPERATURE SENSOR	DO	DIGITAL OUTPUT
CS	CURRENT SWITCH		HEATING/COOLING COIL
CWR	CHILLED WATER RETURN		
CWS	CHILLED WATER SUPPLY		
HWR	HEATING WATER RETURN		FILTER
HWS	HEATING WATER SUPPLY		
	CONTROL VALVE (TWO-WAY)		
N.C.	NORMALLY CLOSED		
N.O.	NORMALLY OPEN		
MOD	MODULATING		
FDBK	FEEDBACK		
FMCS	FACILITY MANAGEMENT CONTROL SYSTEM		
AI	ANALOG INPUT		
AO	ANALOG OUTPUT		



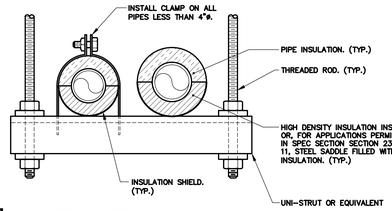
ROLLER SUPPORT



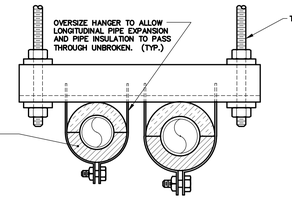
CLEVIS HANGER



VERTICAL PIPE SUPPORT



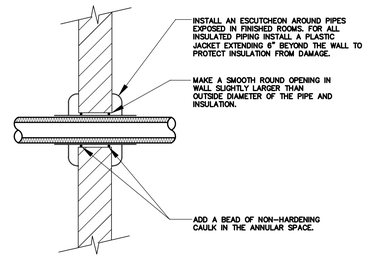
TRAPEZE HANGER



STRUT CLAMP HANGERS

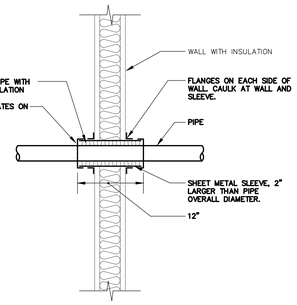
3 PIPE SUPPORT DETAIL
NO SCALE

NOTES:
1. REFER TO SPECIFICATION SECTIONS 23 05 11 & SECTION 23 07 11.



4 PIPE THROUGH NON-FIRE RATED WALL
NO SCALE

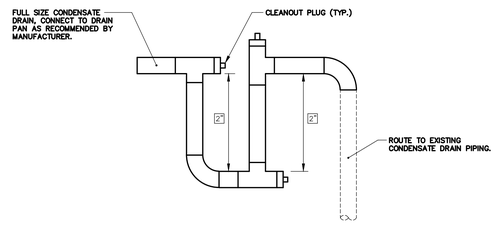
NOTES:
1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS, PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.
2. FLOOR OPENINGS ARE SIMILAR. SEE SPECIFICATION SECTIONS 23 21 13 FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.
3. SEE SPECIFICATION SECTIONS 23 05 11 AND 23 21 13 FOR ADDITIONAL INFORMATION.



GYPSUM WALL CONSTRUCTION

5 NOISE CONTROL WALL PENETRATION DETAIL
NO SCALE

NOTES:
1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTIONS ARE TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS, PERMIT THERMAL EXPANSION WITHOUT DAMAGING THE INSULATION, AND SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL..
2. METHODS THAT ARE LISTED FOR THE REQUIRED HOURLY RATINGS MUST BE USED FOR FIRE RATED WALLS, SEE SPECIFICATION SECTION 23 05 11. ALL OF THE INTENTIONS IN NOTE 1 MUST BE MET BY THE SYSTEM SELECTED.
3. FLOOR OPENINGS ARE SIMILAR. SEE SPECIFICATION SECTIONS 23 05 11 AND 23 21 13 FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.
4. SEE SPECIFICATION SECTIONS 23 05 11 AND 23 21 13 FOR MORE INFORMATION.



6 CONDENSATE TRAP DETAIL (BLOW-THROUGH)
NO SCALE

Revisions:	Date

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REFERENCE SCALE IN INCHES 0 1 2 3

Drawing Title	MECHANICAL DETAILS
Approved Project Director	
Project Title	REPLACING FAN COILS 3RD FLOOR
Location	V.A. HOSPITAL, HINES, IL
Date	06-21-13
Checked	AJW
Drawn	MAK
Project Number	578-12-128
Building Number	200
Drawing Number	M201
Dwg.	8 of 8

Office of Construction and Facilities Management
Department of Veterans Affairs

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